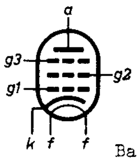
PHILIPS **EF 89**

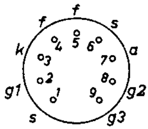
PENTODE with variable mutual conductance for use as R.F. or I.F. amplifier
PENTHODE à pente variable pour utilisation comme amplificatrice H.F. ou M.F.
PENTODE mit veränderlicher Steilheit zur Verwendung als HF- oder ZF-Verstärker

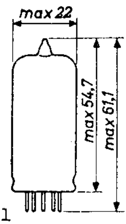
Heating : indirect by A.C. or D.C.; parallel supply
Chauffage: indirect par C.A. ou C.C.; alimentation parallèle
Heizung : indirekt durch Wechsel- oder Gleichstrom; Parallelspeisung

V_f = 6,3 V
I_f = 0,2 A

Dimensions in mm
Dimensions en mm
Abmessungen in mm







Base, culot, Sockel: Noval

Capacitances
Capacités
Kapazitäten

C_a = 5,1 pF
C_{g1} = 5,5 pF
C_{ag1} < 0,002 pF
C_{g1f} = 0,05 pF

Typical characteristics
Caractéristiques types
Kenndaten

V_a	=	250	250	170	V
V_{g2}	=	100	85	100	V
V_{g3}	=	0	0	0	V
I_a	=	9	9	12	mA
V_{g1}	=	-2	-1,2 [1])	-1,2 [1])	V
I_{g2}	=	3	3,2	4,4	mA
S	=	3,6	4,0	4,4	mA/V
R_i	=	0,9	0,75	0,4	MΩ
μ_{g2g1}	=	-	21	-	

[1]) In this case control grid current may occur. If this is not permissible, the negative grid bias should be increased to a value of 1.5 V at least.
Dans ce cas il peut se présenter de courant de grille. Si celui-ci n'est pas permis, il faut augmenter la polarisation négative jusqu'à une valeur de 1,5 V au moins
Bei dieser Einstellung kann Gitterstrom fliessen; wenn das unzulässig ist, muss man eine Einstellung mit -1,5 V Gittervorspannung wählen.

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Operating characteristics as R.F. or I.F. amplifier
Caractéristiques d'utilisation en amplificatrice H.F. ou M.F.
Betriebsdaten als HF- oder ZF-Verstärker

$V_a=V_b$	=	250		200		V
V_{g3}	=	0		0		V
R_{g2}	=	51		24		kΩ
R_k	=	160		130		Ω
V_{g1}	=	-1,95	-20	-1,95	-20	V
I_a	=	9	-	11,1	-	mA
I_{g2}	=	3	-	3,8	-	mA
S	=	3,5	0,24	3,85	0,16	mA/V
R_i	=	0,9	-	0,55	-	MΩ
R_{eq}	=	4,2	-	4,2	-	kΩ
g[1]	=	95	-	102	-	µA/V

$V_a=V_b$	=	250[2]		200[2]		V
V_{g3}	=	0		0		V
R_{g2}	=	62		33		kΩ
R_k	=	0		0		Ω
R_{g1}	=	10		10		MΩ
$V_{R(g1)}$	=	0	-20	0	-20	V
I_a	=	9	-	11,25	-	mA
I_{g2}	=	2,9	-	3,9	-	mA
S	=	4,7	0,22	5,15	0,15	mA/V
R_i	=	825	-	550	-	kΩ
R_{eq}	=	2,4	-	2,5	-	kΩ

---

[1]) Input conductance at f = 50 Mc/s
Conductance d'entrée à f = 50 MHz
Eingangsleitwert bei f = 50 MHz

[2]) See page 1
Voire page 1
Siehe Seite 1

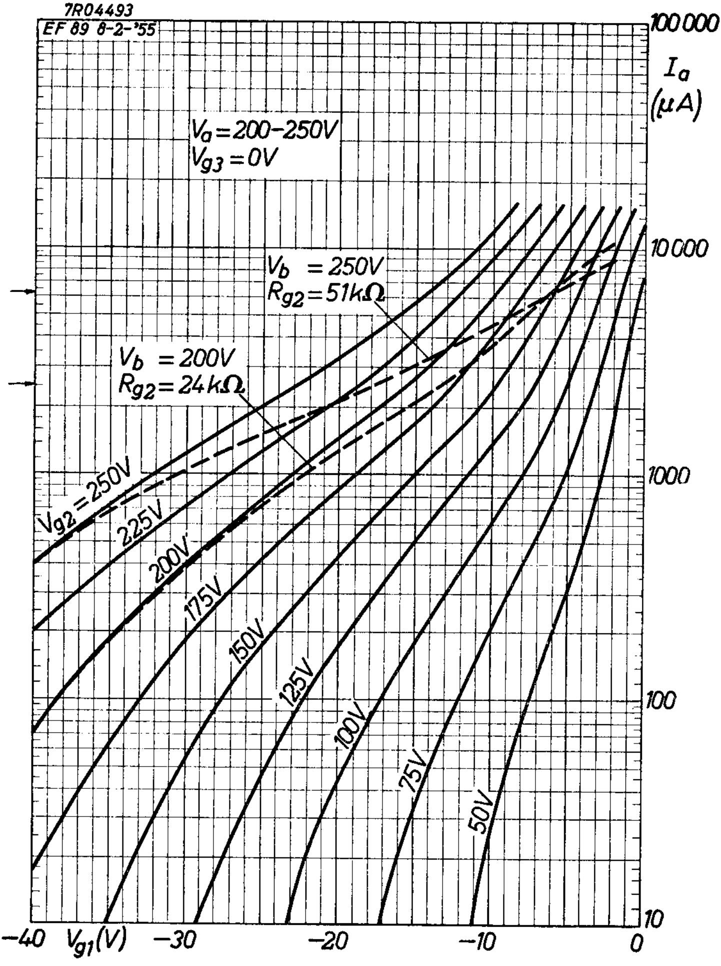
Limiting values
Caractéristiques limites
Grenzdaten

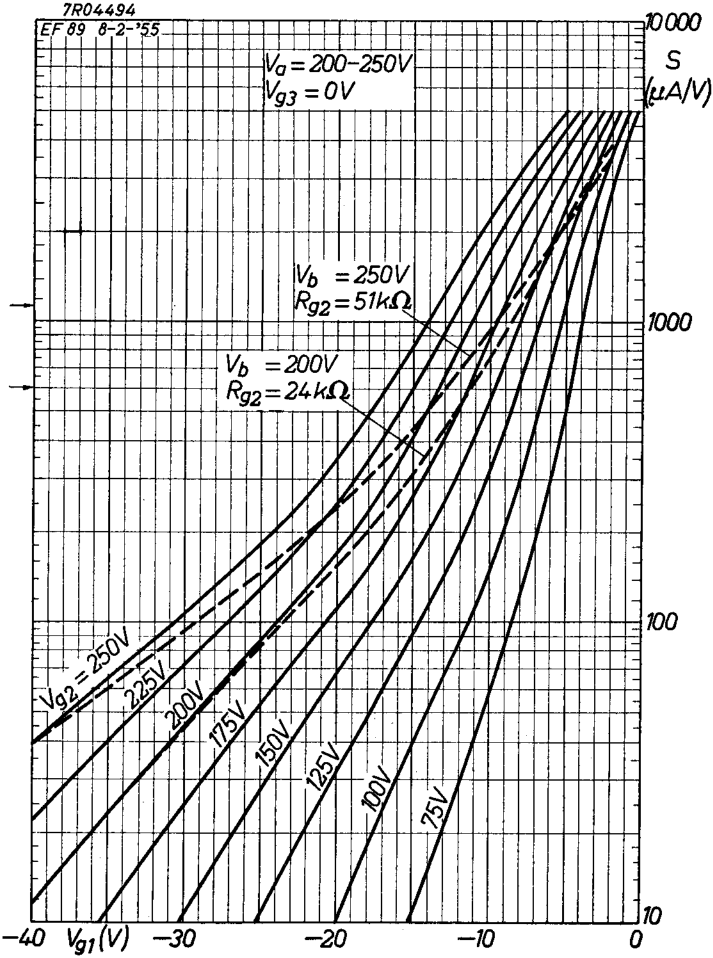
V_{a_o}	= max.	550 V
V_a	= max.	300 V
W_a	= max.	2,25 W
V_{g2_o}	= max.	550 V
V_{g2}	= max.	300 V
W_{g2}	= max.	0,45 W
I_k	= max.	16,5 mA
R_{g1}	= max.	3 MΩ[1])
R_{g3}	= max.	10 kΩ
R_{kf}	= max.	20 kΩ
V_{kf}	= max.	100 V

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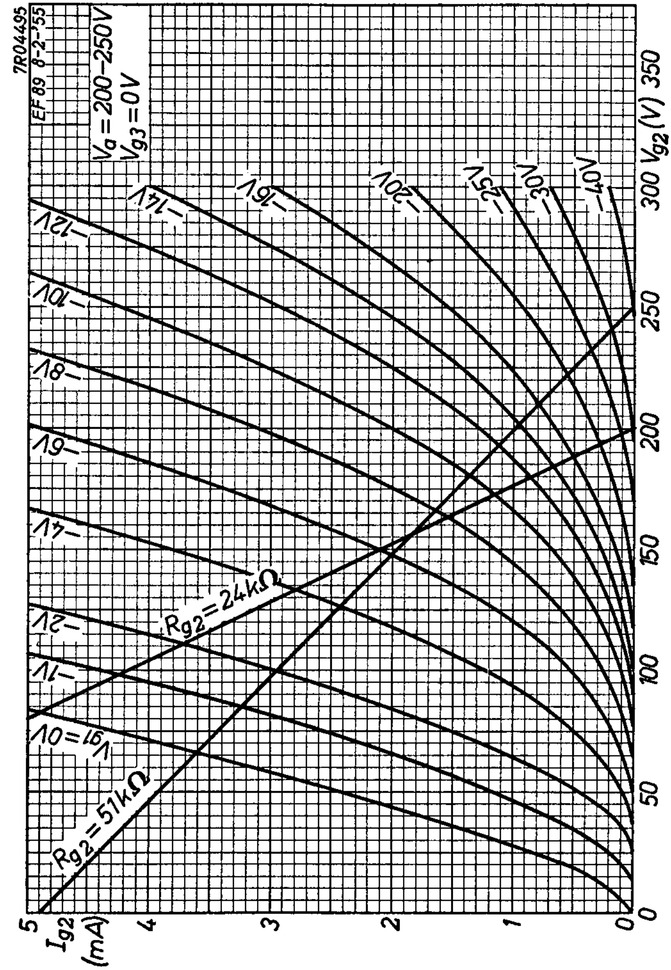
[1])With grid current biasing R_{g1} = max. 22 MΩ
Si V_{g1} est obtenue seulement par moyen de R_{g1}, R_{g1} = max. 22 MΩ
Wenn V_{g1} nur mittels R_{g1} erhalten wird ist R_{g1} = max. 22 MΩ

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7R04494
EF 89 8-2-'55
$V_a = 200-250V$
$V_{g3} = 0V$
10000
S
(µA/V)
1000
100
10
$V_b = 250V$
$R_{g2} = 51k\Omega$
$V_b = 200V$
$R_{g2} = 24k\Omega$
$V_{g2} = 250V$
225V
200V
175V
150V
125V
100V
75V
−40
$V_{g1}(V)$
−30
−20
−10
0

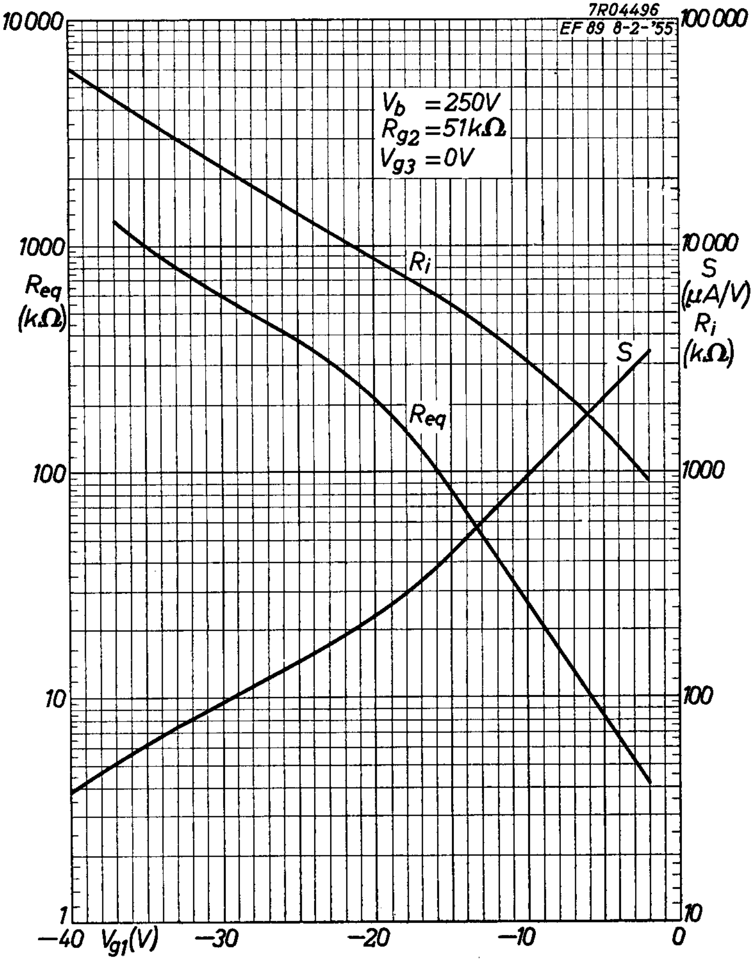
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C

PHILIPS

EF 89

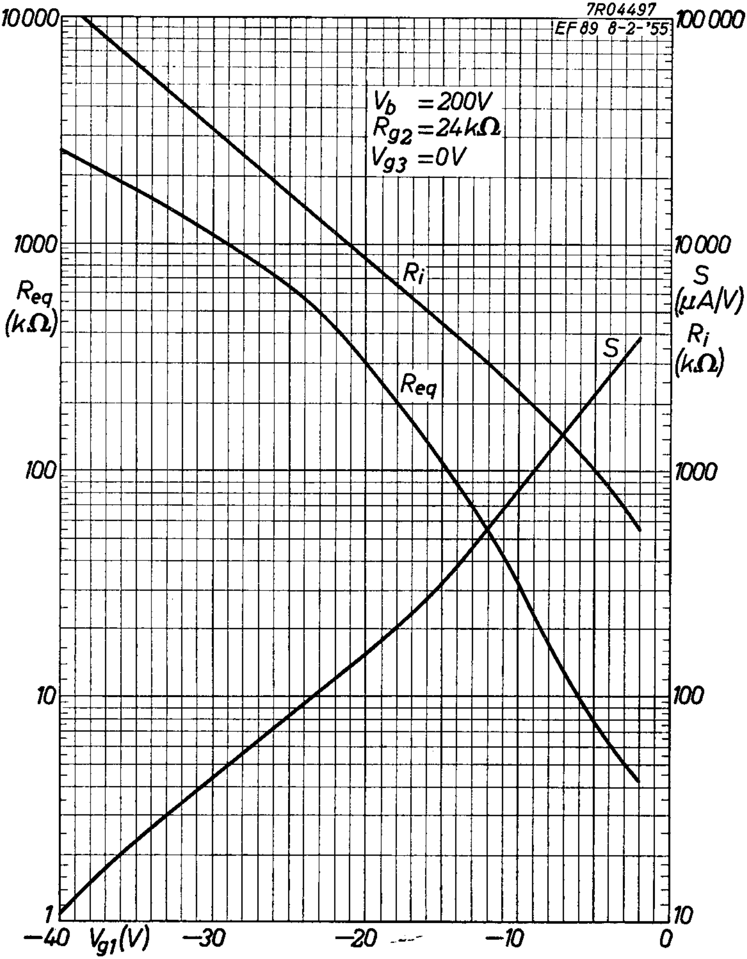


3.3.1955

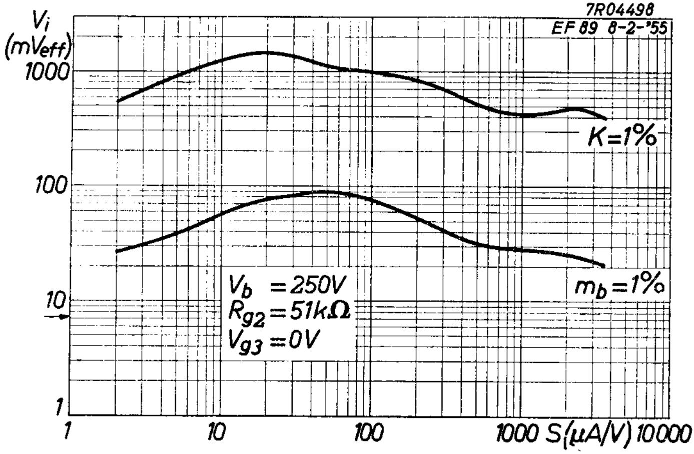
D

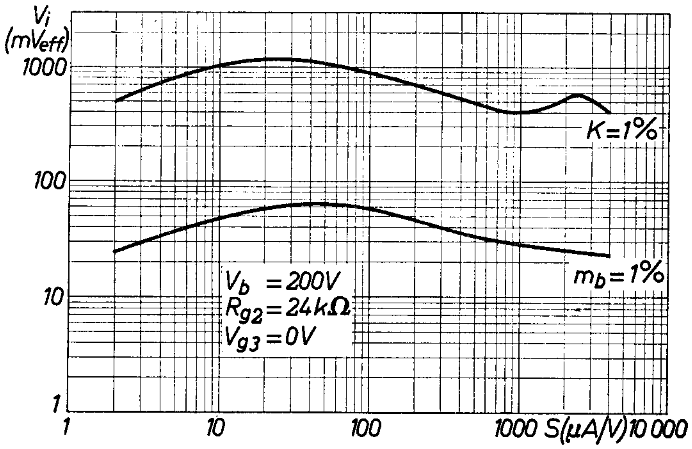
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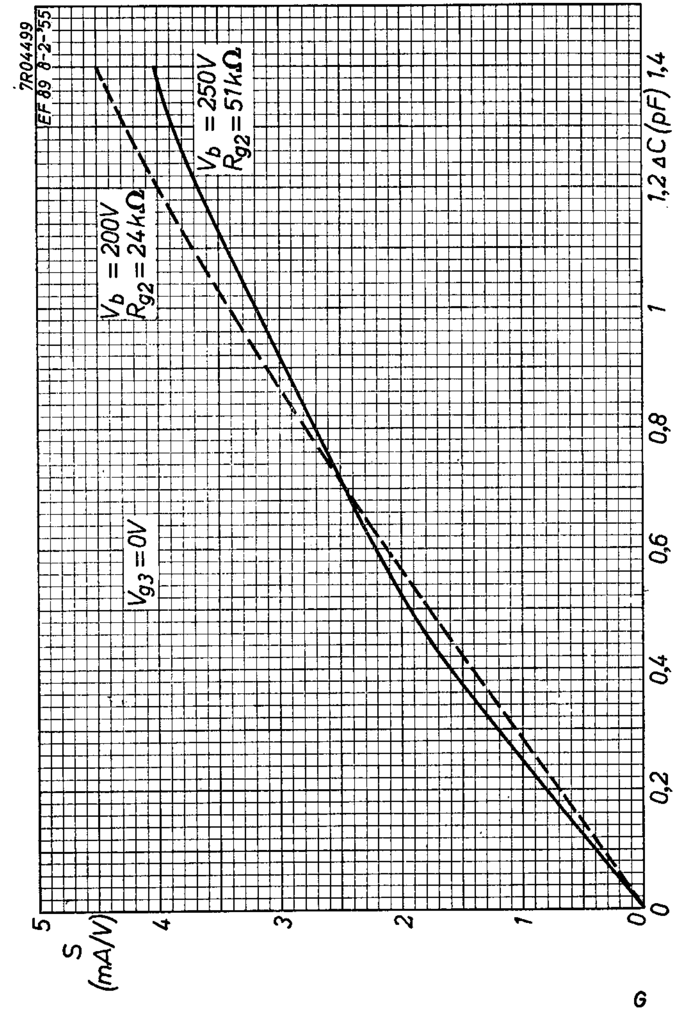


E


7R04498
EF 89 8-2-'55
Vi (mVeff)
1000
100
10
1
K=1%
mb=1%
Vb =250V
Rg2=51kΩ
Vg3=0V
1
10
100
1000 S(µA/V) 10000


Vi (mVeff)
1000
100
10
1
K=1%
mb=1%
Vb =200V
Rg2=24kΩ
Vg3=0V
1
10
100
1000 S(µA/V) 10 000

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G

PHILIPS

Electronic Tube

HANDBOOK

EF89

page	**sheet**	**date**
1	1	1955.12.12
2	2	1955.12.12
3	3	1955.04.04
4	A	1955.04.04
5	B	1955.03.03
6	C	1955.03.03
7	D	1955.03.03
8	E	1955.03.03
9	F	1955.03.03
10	G	1955.03.03
11	FP	1999.06.29